

LIST OF FIGURES

Figure A-1. Indian River Lagoon/St. Lucie Estuary Conceptual Model Boundary	A-2
Figure A-2. St. Lucie Estuary/Indian River Lagoon Conceptual Model	A-4
Figure C-1. Primary Drainage Basins in the St. Lucie Estuary Watershed	C-2
Figure C-2. Thiessen Map of the St. Lucie Estuary Watershed.	C-6
Figure C-3. Observed and Simulated Monthly Flow at the S-97 Structure without the Irrigation Scheme for the Period from 1965 to 1980	C-21
Figure C-4. Observed and Simulated Monthly Flow at the S-97 Structure without the Irrigation Scheme for the Period from 1981 to 1995	C-22
Figure C-5. Observed and Simulated Monthly Flow at the S-97 Structure with the Irrigation Scheme for the Period from 1965 to 1980	C-23
Figure C-6. Observed and Simulated Monthly Flow at the S-97 Structure with the Irrigation Scheme for the Period from 1981 to 1995	C-23
Figure C-7. Comparison of Observed and Simulated Daily Stage at the S-49 Structure for the Period from 1966 to 1969	C-24
Figure C-8. Comparison of Observed and Simulated Daily Stage at the S-49 Structure for the Period from 1981 to 1985	C-25
Figure C-9. Comparison of Observed and Simulated Stage at the S-49 Structure for the Period from 1992 to 1995	C-25
Figure C-10. Comparison of Observed and Simulated Monthly Flow Frequency Curves at the S-97 Structure	C-26
Figure C-11. Comparison of Observed and Simulated Average Monthly Flows from the C-23 Basin	C-27
Figure C-12. Observed and Simulated Monthly Flow with the Irrigation Scheme for the Period from 1965 to 1980	C-28
Figure C-13. Observed and Simulated Monthly Flow with the Irrigation Scheme for the Period from 1981 to 1995	C-28
Figure C-14. Comparison of Observed and Simulated Averaged Monthly Flows from the C-24 Basin	C-29
Figure C-15. Comparison of Observed and Simulated Monthly Frequency Curves at the S- 49 Structure	C-29
Figure C-16. Comparison of Observed and Simulated Daily Flow at the S-49 Structure for the Period from 1966 to 1969	C-30
Figure C-17. Comparison of Observed and Simulated Daily Flow at the S-49 Structure for the Period from 1981 to 1985	C-30

Figure C-18. Comparison of Observed and Simulated Daily Flow at the S-49 Structure for the Period from 1992 to 1995.....	C-31
Figure D-1. Natural Systems Model Boundary Map for the St. Lucie Watershed.....	D-2
Figure D-2. Landscape Map for the St. Lucie Watershed	D-3
Figure D-3. Land Surface Elevation Map for the St. Lucie Watershed.....	D-4
Figure D-4. Aquifer Transmissivity Map for the St. Lucie Watershed	D-5
Figure D-5. Model Grid and River Location Map used in the Natural Systems Model for the St. Lucie Watershed	D-5
Figure D-6. Average Annual Rainfall within the St. Lucie Watershed	D-6
Figure D-7. Average Annual Rainfall Map for the St. Lucie Watershed	D-7
Figure D-8. Surface Flow Vector Map for the St. Lucie Watershed	D-11
Figure D-9. Mean Water Level Map for the St. Lucie Watershed	D-12
Figure D-10. Median Annual Hydroperiod Map for the St. Lucie Watershed	D-12
Figure D-11. Water Level Percentiles for the St. Lucie Watershed	D-13
Figure D-12. Distribution of Flow into the St. Lucie Estuary	D-14
Figure E-1. Satellite Image of the Northwestern Portion of the St. Lucie River Watershed with the Current Canal System and the Township-Range Grid.....	E-2
Figure E-2. Sample Township Plat Map of Township 38 South, Range 39 East, Surveyed by M.A. Williams in May and June of 1853	E-4
Figure E-3. USGS Topographical Quadrant Map of Township 38 South, Range 39 East, Photo Revised in 1983.....	E-5
Figure E-4. St. Lucie River Watershed Portion of the Vegetation Map of Southern Florida (Davis, 1943).....	E-6
Figure E-5. Satellite Image of the Northwestern Portion of the St. Lucie River Watershed, with Township Range Grid	E-8
Figure E-6. United States Bureau of Topographical Engineers' Map of Southern Florida in 1853 Showing "Alpatiokee Swamp" as the Headwaters of the North and South Forks of the St. Lucie River.....	E-10
Figure E-7. Mosaic of Five Township Plats from Townships 37 to 39 South, and Ranges 37 to 39 East, Showing Extensive Sawgrass Marsh, Too Dense and Wet, Hence "Impracticable" to Survey.	E-19
Figure E-8. Township 39 South, Range 41 East, Showing Several Branches of the South Fork of the St. Lucie River.....	E-20
Figure F-1. Sketch of Salinity Intrusion in a Tidal Influenced Channel at Low Tide ..	F-2
Figure F-2. Florida Oceanographic Society Monitoring Stations	F-6
Figure F-3. Two-Dimensional Simulation Grid for the North Fork and the St. Lucie Estuary.....	F-8

Figure F-4. Location of the 5-ppt Isohaline Zone for the 1995 Base Case Simulations.....	F-9
Figure F-5. Location of the 5-ppt Isohaline Zone for the NSM Simulations.....	F-10
Figure F-6. Simulation Grids and the Locations of Monitoring Stations.....	F-13
Figure F-7. Water Surface Elevation at the Inlet	F-14
Figure F-8. Water Surface Elevation at the A1A Bridge	F-14
Figure F-9. Water Surface Elevation at the Roosevelt Bridge.....	F-15
Figure F-10. Water Surface Elevation at the Kellstadt Bridge	F-15
Figure F-11. Salinity at the A1A Bridge	F-16
Figure F-12. Salinity at the Roosevelt Bridge.....	F-16
Figure F-13. Salinity at the Kellstadt Bridge	F-17
Figure F-14. Location of the 5-ppt Isohaline Zone in the 1995 Base Case Simulation	F-20
Figure F-15. Location of the 5-ppt Isohaline Zone for the NSM Simulation	F-20
Figure H-1. Model Domain and Locations of Tide/Salinity Data Collection Stations.	H-1
Figure H-2. Finite Element Mesh of the St. Lucie Estuary Model	H-3
Figure H-3. Model Verification at the A1A Bridge Station in the Lower Estuary.....	H-4
Figure H-4. Model Verification at the Roosevelt Bridge Station in the Upper Estuary	H-4
Figure H-5. Model Predicted Salinity Conditions at Various Magnitudes of Freshwater Inflow from the St. Lucie Inlet to the North Fork.....	H-6
Figure H-6. Model Predicted Salinity Conditions at Various Magnitudes of Freshwater Inflow	H-6
Figure H-7. Salinity-Flow Relationship at the Roosevelt Bridge in the Upper Estuary.....	H-7
Figure H-8. Salinity-Flow Relationship at the A1A Bridge at Hellgate in the Lower Estuary.....	H-7
Figure H-9. Salinity Regime Transition at Station SE03.....	H-8
Figure H-10. Results of Long-Term Simulation Testing at the Roosevelt Bridge in the Upper Estuary.....	H-9
Figure H-11. Results of Long-Term Simulation Testing at the A1A Bridge in the Lower Estuary.....	H-9
Figure H-12. Natural (NSM) versus Present (1995 Base Case) Conditions Salinity at the Roosevelt Bridge	H-11
Figure H-13. Future with Project versus Present (1995 Base Case) Conditions Salinity at the Roosevelt Bridge	H-11

